



Editorial

Phasing out Leaded Gasoline Will Not End Lead Poisoning in Developing Countries

The phaseout of leaded gasoline would be a significant step forward in the reduction of a major source of exposure; however, this undertaking, even if successful, will have limited public health impact if other sources of exposure are not substantially reduced. For instance, in Mexico City, after the introduction of unleaded gasoline in 1990, lead concentrations in air declined from 1.2 $\mu\text{g}/\text{m}^3$ to 0.2 $\mu\text{g}/\text{m}^3$ in 1993. Blood lead concentrations in schoolchildren ($n = 2350$) also went down, from 16.50 $\mu\text{g}/\text{dl}$ to 11.14 $\mu\text{g}/\text{dl}$ in 1992 (1,2). Nevertheless, since 1992, blood lead level in this particular cohort of children has declined at a slower pace, showing concentrations of 9.8 $\mu\text{g}/\text{dl}$ (3), indicating exposure to other sources.

In Caracas, Venezuela, between 1971 and 1993, the lead content in gasoline was reduced from 0.84 to 0.45 g/l. However, during this period the number of vehicles has also grown, tripling gasoline consumption. The net result has been an increase from 3,763 to 5,492 tons/year of lead released into the air (4).

While lead in gasoline additives represents only 2.2% of the total global lead use, it may have a disproportionate significance to human health. On one hand, the rapid urbanization experienced by the Latin America and the Caribbean countries, where close to 75% of the population lives in cities, places about 14.5 million children below 2 years of age at a particular risk (5), since the volume of traffic close to home is an important predictor of lead blood levels (6). On the other hand, the use of leaded gasoline is preventing widespread use of catalytic converters in vehicles, therefore contributing to the continuous increase of the already critical levels of other air pollutants.

Recent estimates of the use of leaded gasoline in the Americas indicate that approximately 9,000 tons/year of lead are still being added to gasoline. Sixteen countries are marketing gasoline with a maximum lead concentration of 0.8 g/l. Thirteen countries have reduced their gasoline lead content to about 0.4 g/l, and only six countries have phased out leaded gasoline altogether (7).

During the Summit of the Americas, held December 1994, in Miami, Florida, the heads of governments agreed to develop and implement national action plans to phase out lead in gasoline. More recently, in April 1995, the United Nations Commission on Sustainable Development made recommendations to "all interested countries to develop action plans with a view to phase out or reduce the use of lead in gasoline." The commission also encouraged countries to share their knowledge and experience in the reduction or phasing out of leaded gasoline, including the use of biomass ethanol as an environmentally sound substitute for lead in gasoline. The commission further called upon countries to guard against the replacement of lead in gasoline with the extensive use of aromatics that are also harmful to human health. During the International Conference on Lead in the Americas: Strategies for Disease Prevention, held in May 1995, in Cuernavaca, Mexico, one of the conclusions was the urgent need to undertake reliable comparative risk assessments on alternative fuels.

A fact we should not forget is that most acute and even fatal lead poisoning cases in developing countries are associated with uncon-

trolled cottage industries, in particular battery recycling. On a global scale, 63% of all processed lead is used in the manufacturing of batteries; as yet, no reliable and practical alternative technology is available (8). Latin American and Caribbean countries produce or recycle about 14% of the global output of lead and consume about 4% of the total production. Mexico and Peru are the two major exporters. Lead mining and processing still continue to be important occupational hazards. In 1990, the Mexican Social Security Institute reported that lead poisonings ranked third in importance, accounting for about 12% of all reported occupational disease. This figure does not include chronic diseases not easily identified as resulting from lead exposure such as high blood pressure and renal failure (9).

Other important sources of exposure include the use of lead-glazed pottery, which may release significant quantities of lead into the food. The consumption of food prepared and/or stored in lead-glazed ceramics is a significant risk factor for elevated lead blood levels among consumers (10). Lead-soldered side-seam cans are widely used in Latin America and Caribbean countries. Lead residues in canned food often exceed international accepted limits. For instance, in Honduras, studies have shown lead concentrations in canned food ranging from 0.13 to 14.8 mg/kg (11). Lead-based paint is used throughout Latin America and Caribbean countries. The proportion of lead can reach 50% for exterior paint. Lead pigments are also used in children's toys and pencils. In developing countries, lead concentrations in drinking water are rarely tested and its importance as a potential source remains unknown.

Only a few developing countries are aware of the public health importance of lead exposure, and fewer still have begun to update their policies and regulations and expand their operational capabilities to reduce lead exposures. Unfortunately, most still lack the awareness, infrastructure, and technical expertise to cope with the problem.

In conclusion, it is critical to expedite the phaseout of leaded gasoline, but it is equally important to reduce and eliminate other potential sources of exposure. The importance of data collection and research should not preclude countries lacking good information to take preventive steps based on the experiences of others. A better coordinated approach shared by local, national, and international agencies may finally make lead poisoning a completely preventable disease.

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XIVth World Congress on Occupational Safety and Health

April 22–26, 1996

Madrid, Spain



The XIVth World Congress on Occupational Safety and Health will be held in Madrid from April 22 to April 26, 1996. The organizers are the Spanish Ministry of Labour and Social Security, through the National Institute for Occupational Safety and Health (INSHT), the International Labour Office (ILO), Geneva, and the International Social Security Association (ISSA), Geneva.

These World Congresses, of which the first was held in Rome in 1955 and the last in New Delhi in 1993, have had such venues as Brussels, Paris, London, Zagreb, Vienna, Dublin, Bucharest, Amsterdam, Ottawa, Stockholm and Hamburg.

The XIVth World Congress, to be held in Madrid, aims to be an open forum for all persons involved in risk prevention at work, safety and health specialists, occupational health physicians, labour inspectors, persons directly concerned with safety and health at work, including entrepreneurs and managers in enterprises, trade union representatives, manufacturers and importers, as well as heads of public administration and social security administrators.

The main focus of this Congress will be on the consequences for occupational safety and health of processes of international and regional integration (e.g. EU, NAFTA) and of the globalization of economic relations, on an in-depth analysis of chemical risks and on new proposals for cooperation and participation within enterprises. Other specific issues will also be dealt with, such as training and information, control of working conditions or new responsibilities. Special emphasis will be placed on small and medium-sized enterprises and sectors facing specific problems with regard to safety and health at work, such as the construction sector and agriculture.

In addition, as part of this Congress, the International Section "Electricity" of the ISSA will be organizing the 3rd International Film and Video Festival on Occupational Safety and Health.

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